Proceedings of the International Conference on Industrial Engineering and Operations Management

Publisher: IEOM Society International, USA DOI: 10.46254/WC02.20250029
Published: October 14, 2025

Navigating Supply Chain Tensions: The Role of AI and Paradox Thinking in Driving Sustainability

Owais Khan
Department of Management Studies, Aalto University
Espoo, Finland
owais.khan@aalto.fi

Abstract

Supply chain managers are increasingly expected to navigate competing demands—such as efficiency versus sustainability, short-term cost pressures versus long-term innovation, and internal alignment versus external stakeholder expectations. Drawing on paradox theory, this study explores how managers cognitively and behaviorally respond to these tensions and how such responses influence sustainable supply chain practices. Specifically, I propose and empirically test a model in which experienced tensions affect sustainable supply chain practices, mediated and/or moderated by two key enablers: a paradox mindset and AI adoption. Using PLS-SEM and a survey of supply chain professionals, the study examines the behavioral microfoundations of sustainability in supply chain decision-making. The findings contribute to the operations and supply chain literature by (1) applying paradox theory at the individual level, (2) reframing AI as a behavioral and cognitive support tool, and (3) demonstrating how human cognition and digital technologies jointly enable sustainability-oriented decisions in complex environments. The results offer practical implications for organizations aiming to build more resilient and sustainable supply chains through both human and technological capabilities.

Keywords
AI Adoption, Experiencing Tensions, Human-AI Collaboration, Paradox Mindset and Sustainability.

Biographies
Owais Khan is currently a Research Fellow at the Department of Management Studies, Aalto University in Finland. He got a joint Ph.D. in Sustainability Management from Sant'Anna School of Advanced Studies and in Environmental Sciences and Technology from Ghent University. His research interests include, but are not limited to, corporate sustainability, circular economy, supply chain management, industrial symbiosis, and life cycle assessment (LCA). He has published articles in leading journals including the International Journal of Operations & Production Management, Business Strategy & the Environment, Journal of Cleaner Production, Journal of Sustainable Tourism, and Corporate Social Responsibility and Environmental Management.